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# **Long-term Food Security: The Role of Biotechnology**

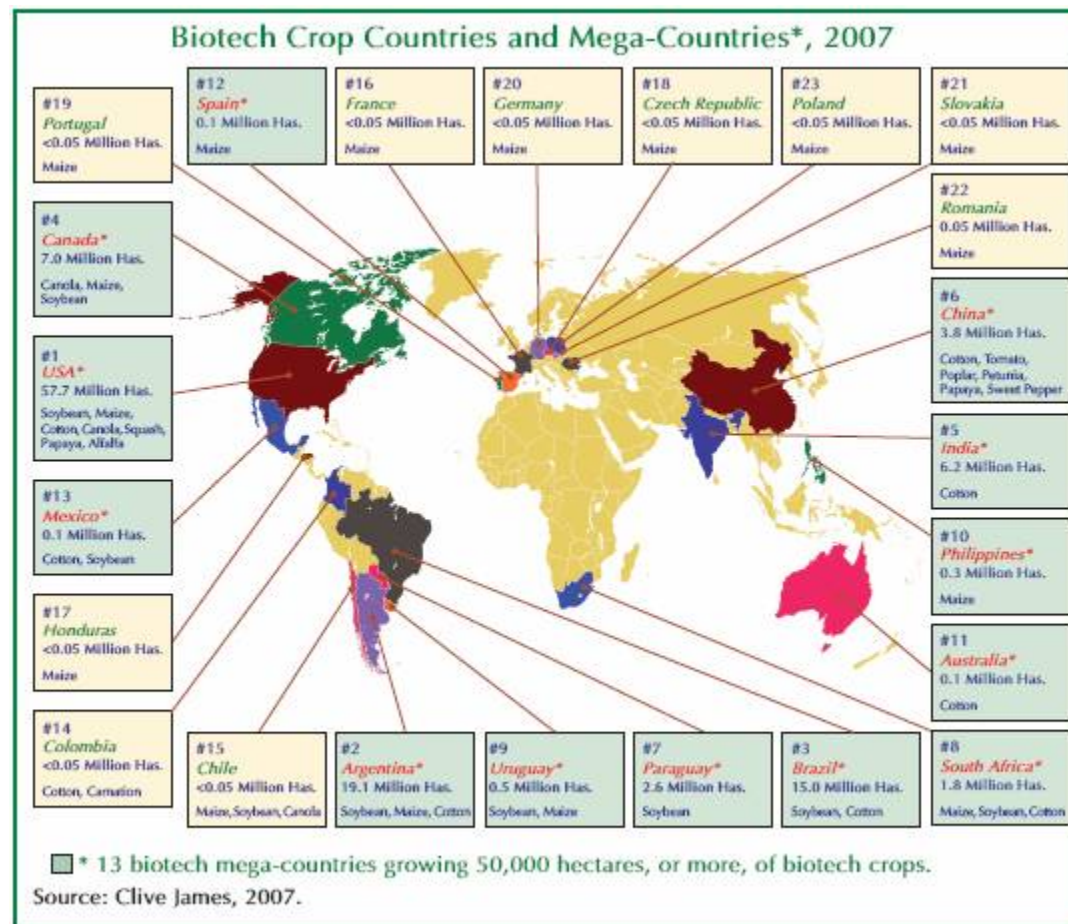
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## **Global Status of GM Crop Production**

- Over 100 million hectares planted globally
- 23 countries planting GM crops + 29 for food/feed
- 64% of global soy, 25% maize, 43% cotton
- 75-80% of processed food in U.S. contains GM
- 2/3 of white maize in South Africa
- 2/3 of cotton in India; doubled from 2006-2007
- 250,000 ha of GM maize in the Philippines



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## What Have Biotech Crops Delivered?

- **Increased income**
  - India cotton: net farm income up by \$200/ha
  - World Bank: GM cotton could boost SSA welfare more than full WTO liberalization
- **Reduced impact on environment**
  - environmental impact of pesticides down 15% in ten years
  - Reduced greenhouse gas emissions in 2006 equivalent to removing 6.5 million cars
- **Drought tolerance**
  - all major companies launch in U.S. by 2015



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## What Can Biotech Crops Deliver?

- **Nitrogen Use Efficiency**
  - Global price of fertilizer doubled in 2007
  - GM technology: same yield with ½ fertilizer or 30% yield gain
  - Carbon credits for farmers in China
- **Biotech v.s. breeding**
  - Good yield increase through breeding 5-10%
  - GM crops in developing countries: 10-50%



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## Our Role

- Helping developing countries make informed choices
- Give small farmers a choice: crops and technologies they need
- Requires public investment – U.S. largest donor
- Leverage U.S. scientific and commercial leadership



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## Our Impact

- **Policy**
  - First field trials in Uganda, Bangladesh
  - Commercial approval for cotton in Burkina Faso
  - Policy in place to allow trials in Ghana, Nigeria, Malawi
  - Streamlining and strengthening regulatory in India
- **Technology**
  - Eggplant in India: first food crop
  - 1<sup>st</sup> commercial approval by public sector in South Africa
  - First trials in Uganda, Bangladesh
  - Trials in Philippines: eggplant and papaya



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## Public-Private Partnerships

- Policy development and reform allows private sector to enter market.
- Eggplant in India – commercial hybrids + public varieties.
- Cowpea & Nitrogen Use Efficient Rice – licensing of property technology & technical support.
- Maize for Africa & rice for Asia – new models for expanding small farmer access to commercial technology.